



Accelerated Bridge Construction

Research, Design and Practice

FHWA Showcase/Workshop
March 27, 2011

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Presentation Outline

- Research

- Accelerated Bridge Construction (ABC) initial efforts

- Design

- Program implementation

- Practice

- Projects



Research *Outline*



- Perform scanning tours
- Conduct pilot project
- Identify a program of projects
- Get involved nationally



- Market internally and externally
- Conduct workshops
- Engage industry

Research

Scanning Tours

Research

Pilot Project



- Obtain senior leadership involvement
- Promote marketing and media plan
- Develop messaging
- Prepare visual animation
- Evaluate project risks
- Define scope, schedule and budget
- Identify procurement method



Research

Program of Projects

- Prescriptive projects – gain experience
 - Design-Bid-Build
 - Construction Manager General Contractor (CMGC)
- Performance projects – innovations led by contractor
 - Design-Build

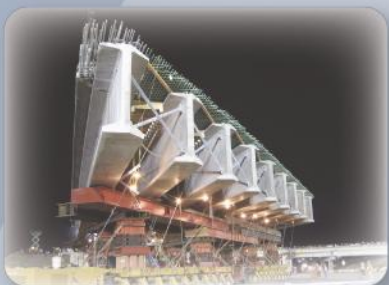


- Coordinate with FHWA
- Participate in AASHTO Subcommittees
- Host showcase projects
- Share lessons learned and best practices

Research

Get Involved Nationally

Design *Outline*



- Educate and communicate with industry
- Evaluate projects
- Implement standardization
- Improve based on lessons learned

Design

Educate and Communicate With Industry

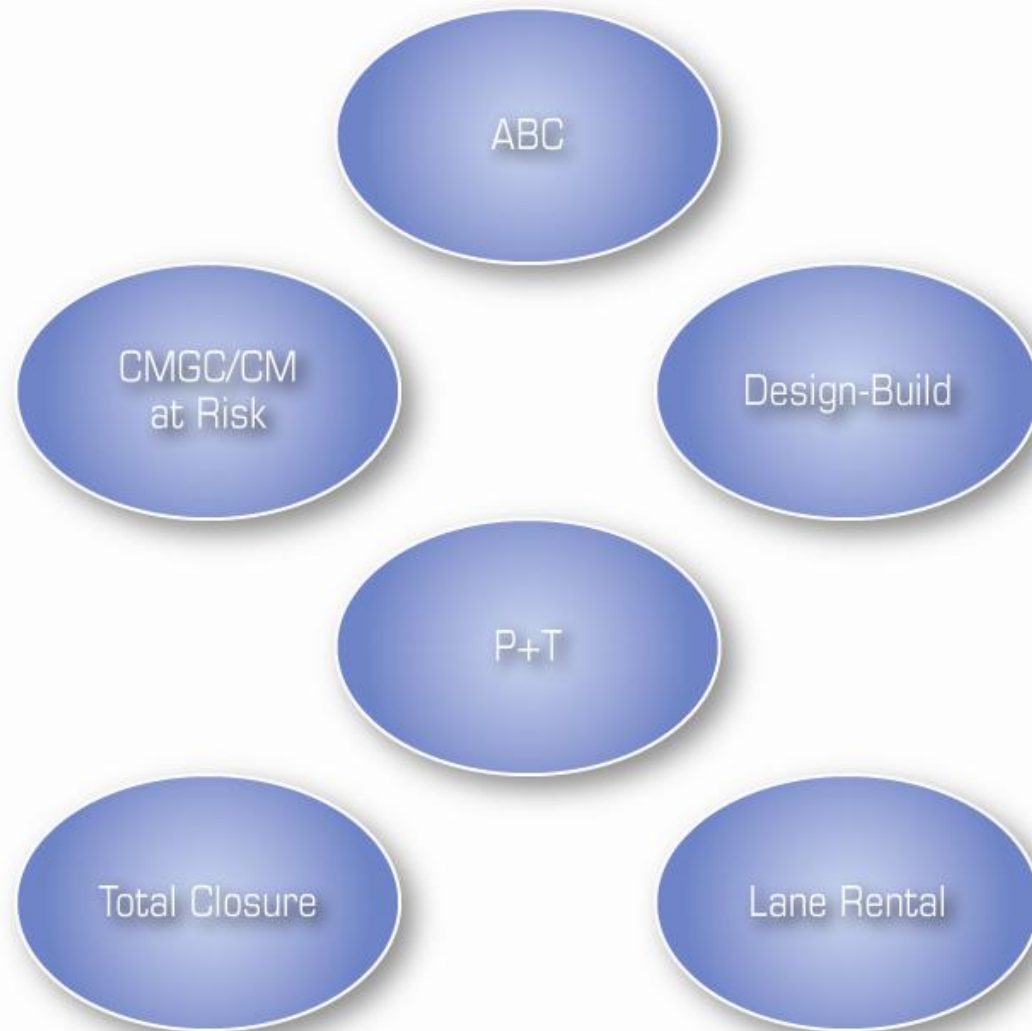
■ ABC goals

- Relentlessly pursue reducing traffic congestion during construction
- Add value by furthering Department themes and meeting project goals
- Improve worker safety and safety to the travelling public
- Improve quality





Design *Evaluate Projects*





- Develop guidelines for ABC project inclusion
- Develop typical details and manuals
- Include user costs in analysis
- Encourage innovation
- Provide training and obtain feedback

Design

Implement Standardization



- Perform program review
- Find program deficiencies
- Repair deficiencies
- Review design decisions
- Measure design assumptions vs. reality

Design

Lessons Learned

Practice *Outline*



- Innovative elements and methods
- Timeline and history
- Project highlights
- Program evaluation



Precast Concrete Elements; I-80; Wanship Bridge





Modular Construction; I-215 over 3670 South



Practice

Innovative Elements and Methods

Structure Placement Methods



Practice

Innovative Elements and Methods

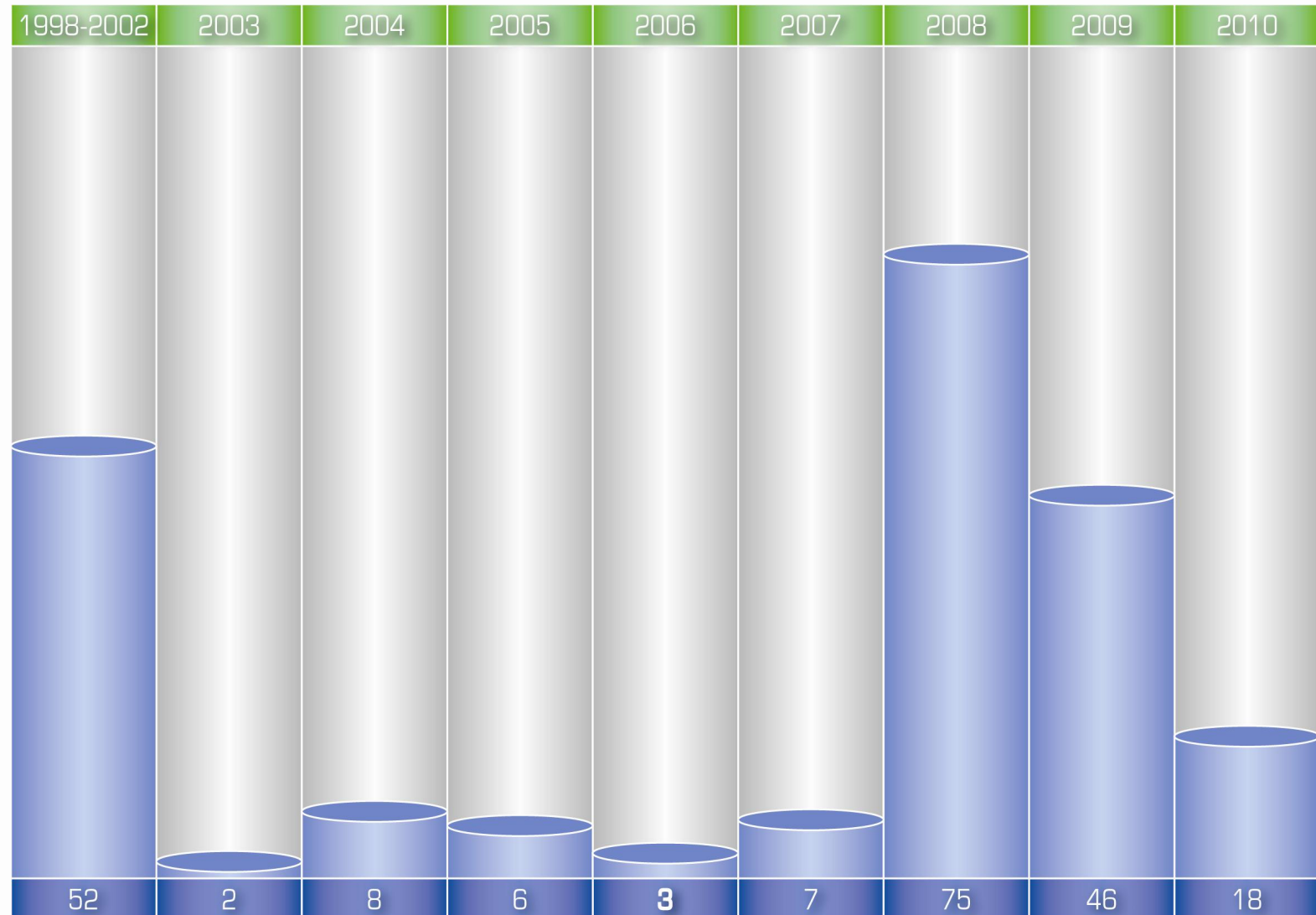
Accelerated Geotechnical; Geofoam Embankment





Practice

Timeline and History





ABC Method / Element

Bridge Launch	2
Self Propelled Modular Transporters (SPMT)	22
Slide-in	5
Heavy Lift Cranes	2
Half Depth Precast Deck Panels	63
Full Depth Precast Deck Panels	31
Precast Voids Slabs	3
Approach Slab Panels	15
Precast Sleeper Slabs	14
Precast Abutments	6
Precast Bent Caps	3
Precast Columns	1
Prefabricated Pedestrian Bridge	5
Precast Box Culvert	44

Number of Bridges

Practice

Timeline and History

Practice

Project Highlights

800 North over I-15; Precast Deck Panels; CMGC



Practice

Project Highlights

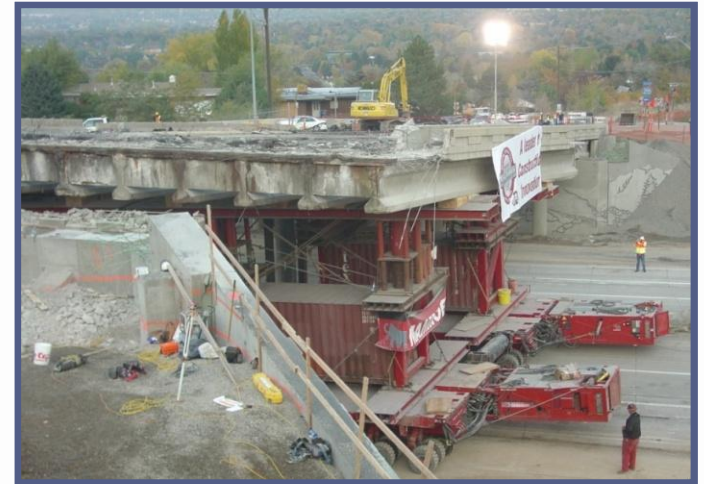
Riverdale Road over I-84 ; Lego Bridge; CMGC



Practice

Project Highlights

4500 South over I-215; SPMT; CMGC



Practice

Project Highlights

I-80; Lambs Canyon Bridge; SPMT; Design-Build



Practice

Project Highlights

I-80; State Street to 1300 East; SPMT; CMGC



Practice

Project Highlights

I-70; Eagle Canyon Bridge; Precast Deck Panels; CMGC



Practice

Project Highlights

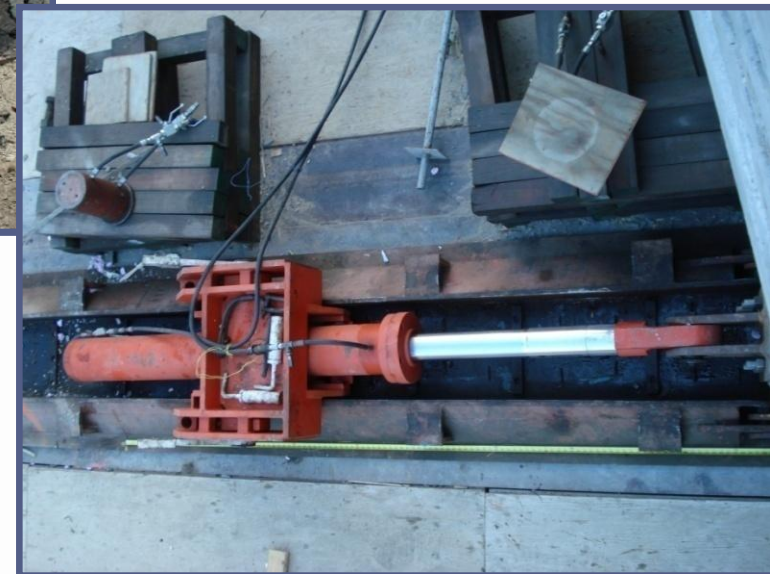
SR-66 Over Weber River; Slide-in; Design-Bid-Build



Practice

Project Highlights

I-80; Two Bridges Near Echo Junction; Slide-in; Design-Build



Practice

Project Highlights

I-80 over 2300 East; Slide-in; Design-Build



Practice

Project Highlights

South Layton Interchange; Launch; Design-Build



Practice

Project Highlights

U.S. 89 over I-15; SPMT; Design-Build

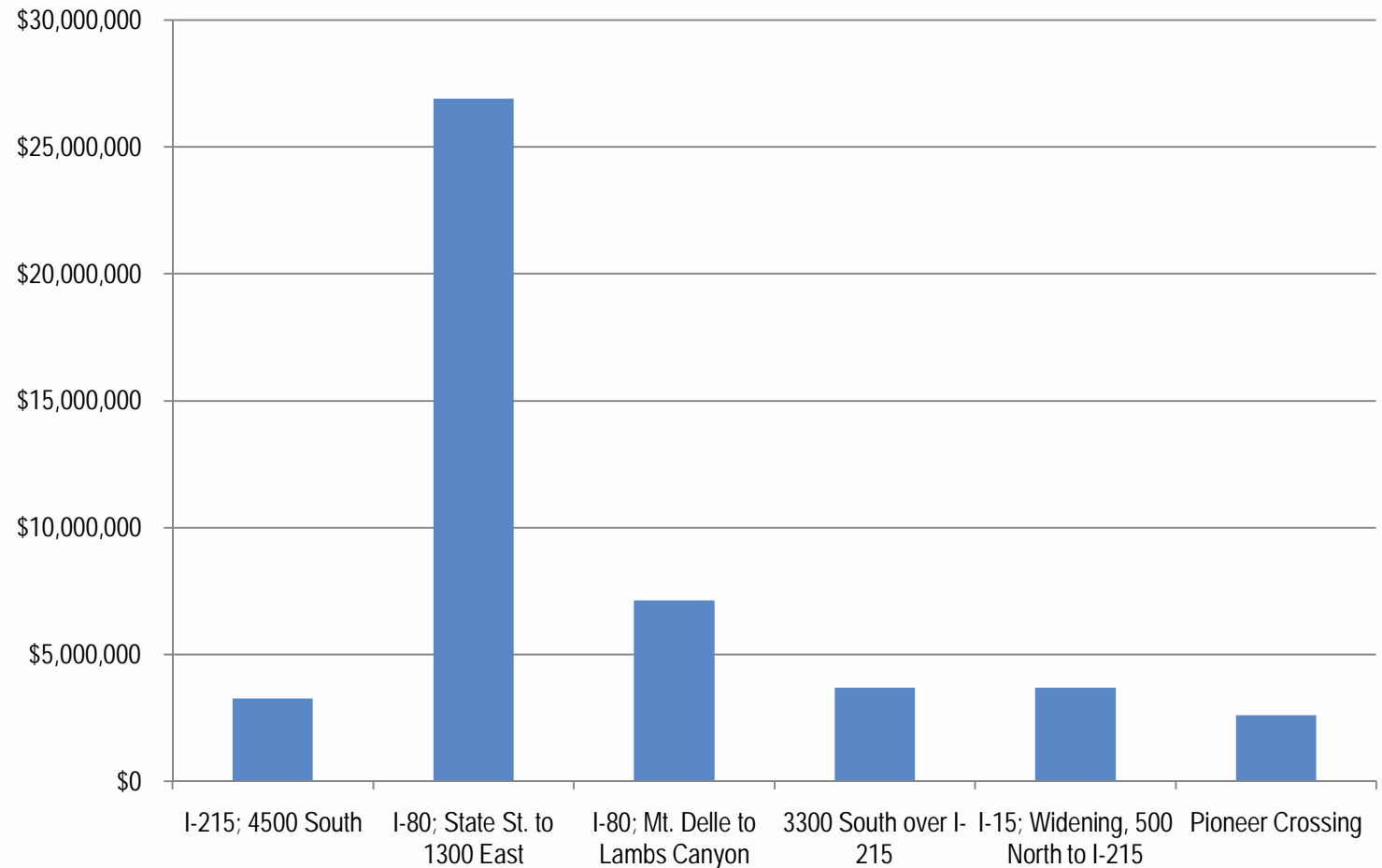




Program Evaluation

Utah ABC Costs; SPMT

Valued Added (includes user cost savings)

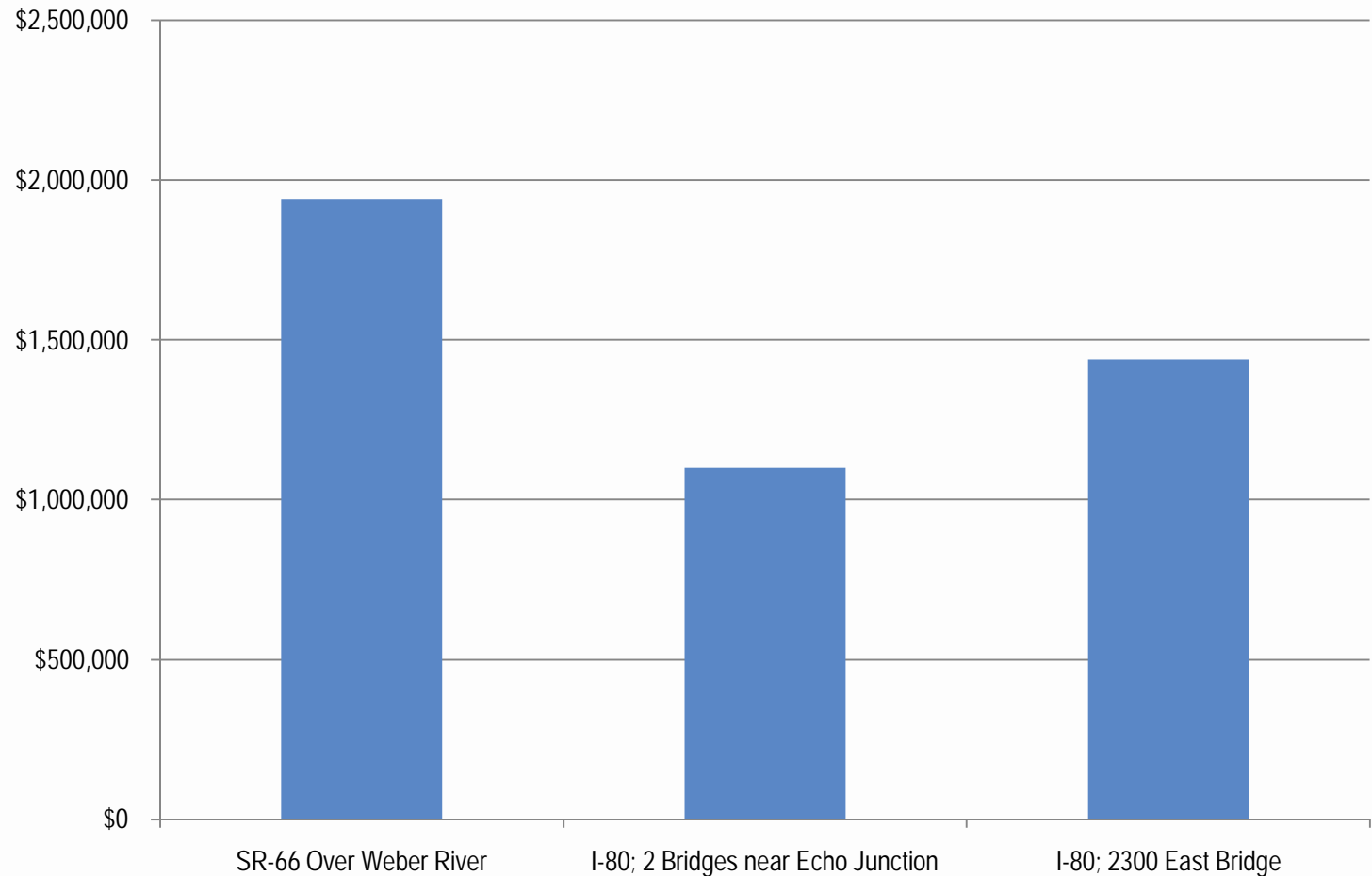




Program Evaluation

Utah ABC Costs; Slide-In

Valued Added (includes user cost savings)

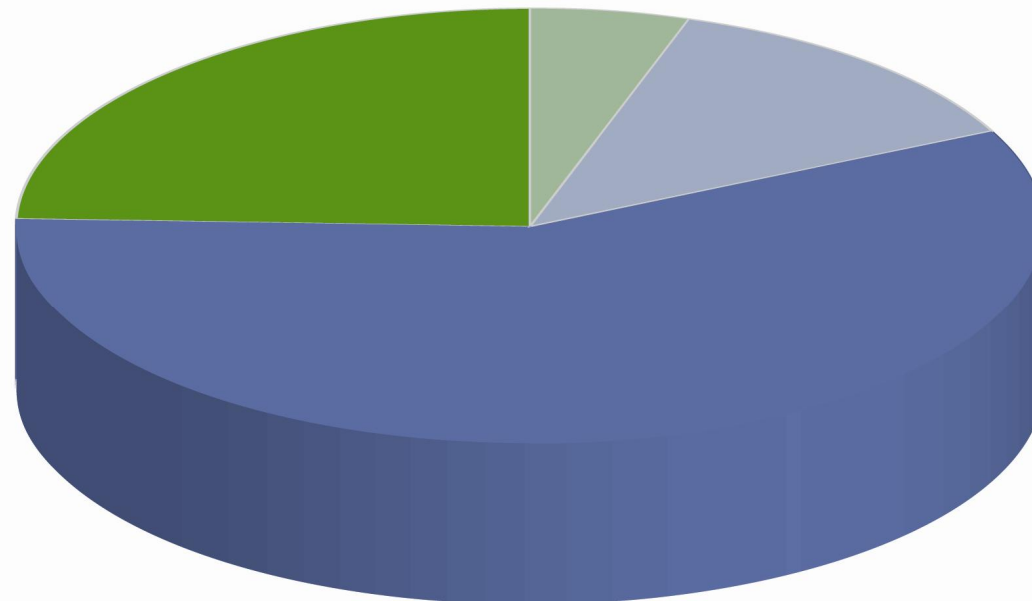




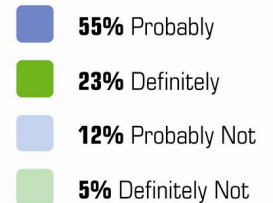
Program Evaluation

ABC Because...

- Value added to the public
- Societal costs minimized
- Public support for innovation
- Political capital



Would you say UDOT is becoming more innovative?



Source: 2010 Dan Jones & Associates